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COST OF PRODUCING FIELD CROPS, 1923

(CORN, WHEAT, OATS, POTATOES, AND COTTON)

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The purpose of this report is to present in some detail the findings of an inquiry into costs of production of certain leading crops in 1923 and to make certain comparisons between the costs of production in 1922 and 1923. Corn, wheat, and oat crops were studied during both years, and the study for 1923 included also potatoes and cotton. It is planned to continue this work, so that in the course of time indices will be available, which will make possible comparisons as to yearly changes in the cost of producing the principal crops grown in the United States.

BASIS OF STUDY

This study is based on the replies to a cost of production questionnaire which was mailed to crop and livestock reporters located in all of the States.¹

The cost figures include charges for labor of the farmer and family and a charge for the use of land on a cash rental basis. If the cost exactly equaled the price, the farmer was paid for his time and in-

¹ The results of the study made in 1922, also based on replies to questionnaires, and including corn, wheat, and oats, were published in *Weather, Crops and Markets*, September 1, 1923. A summary of the present study for 1923 was published in the *Supplement to Crops and Markets*, June, 1924. This report included corn, wheat, oats, potatoes, and cotton.

vestment on the basis of what he estimated it would cost to hire the work done and what the land would rent for.

When the cost was greater than the price, the difference did not always represent an actual cash loss; such a condition means, however, that many farmers did not receive sufficient income from the crop to pay all cash expenses of production and allow them going wages for their time and the cash rental value of their land as reported. When the average price exceeded the average cost, the majority of the farmers received enough from the crop to pay all cash expenses and an allowance for their own time and land in excess of current wages and land rental values.

The yields on the farms reporting were, in general, higher than the yields reported by the Division of Crop and Livestock Estimates; also, the acreage per farm for each crop was greater than that given in the census of 1919. The indication is that the farmers were somewhat inclined to give costs on only the crops in which they specialized, which would result in a proportionately large number of reports on corn from the Corn Belt, on wheat from the Wheat Belt, and so on. In other words, the figures are probably affected to a greater extent by reports from commercial than from non-commercial areas.

QUESTIONNAIRE SUBMITTED TO FARMERS

The questionnaire, a sample of which follows, provided for answers from each farmer on every item of cost, on yield, acreage, value of by-product, and sales value of the product itself.

COST PER ACRE OF CROPS ON YOUR FARM, YEAR 1923

Before filling in costs, read carefully the notes below

Cost or value of—	Corn (for grain)	Wheat (for grain)	Oats (for grain)	Irish potatoes	Cotton
	\$	\$	\$	\$	\$
1. Commercial fertilizer.....per acre.....					
2. Manure and compost.....per acre.....					
3. Seed.....per acre.....					
4. Twine, sacks, sheets, etc.....per acre.....					
5. Thrashing (see note 5).....per acre.....					
6. Ginning, including bags and ties (cost per bale, \$.....).....per acre.....					
7. Special crop insurance.....per acre.....					
8. Wear and tear on implements.....per acre.....					
9. Wear and tear on storage buildings.....per acre.....					
10. Preparing ground for seed (see note 10).....per acre.....					
11. Planting or sowing (including preparing seed and replanting).....per acre.....					
12. Spraying, dusting, etc. (includes cost of ma- terials).....per acre.....					
13. Irrigation (include water charges).....per acre.....					
14. Cultivation (see note 14).....per acre.....					
15. Harvesting (see note 15).....per acre.....					
16. Haul to market (see note 16).....per acre.....					

COST PER ACRE OF CROPS ON YOUR FARM, YEAR 1923—Continued

Cost or value of—	Corn (for grain)	Wheat (for grain)	Oats (for grain)	Irish potatoes	Cotton
	\$	\$	\$	\$	\$
17. Overhead (see note 17).....per acre.....					
18. List separately any other costs not shown above.....per acre.....					
19. What would your land cash rent for.....per acre.....					
Total cost.....per acre.....					
20. Acres in each crop.....					
	Bushels	Bushels	Bushels	Bushels	Pounds of lint
21. Yield per acre (see note 21).....					
	Per bushel	Per bushel	Per bushel	Per bushel	Per pound of lint
22. Sales value of product per unit.....					
23. Sales value of product per acre.....					
24. Value of by-product (see note 24).....per acre.....					
25. Average value of land, each crop.....per acre.....					
26. Average land tax.....per acre.....					
27. Acres of each crop on summer fallow land (see note 27).....					

NOTES.—The cost of man labor and teams should be estimated upon the basis of the prevailing rate of wages paid, whether actual work is done by owner or hired labor. The cost of work done with tractor instead of horses should include man labor, fuel, oil, repairs, and depreciation; do not include any tractor costs under question 8, "Wear and tear on implements."

5. Include the charge of the thrasher and any other labor and expenses connected with thrashing.
10. Include the usual operations done in preparing an acre, such as plowing, listing, bedding, harrowing, disking, laying off rows, etc.
14. Include such work as harrowing and rolling after crop is planted, cultivation, hoeing, blocking, chop ping, thinning, etc.
15. Include cutting, shocking, stacking, husking, picking, digging, etc.; do not include shelling corn.
16. Include work preparing product for and hauling to market which is not included previously.
17. Give your estimate of how much per acre should be added to the cost of each crop to take care of general farm expenses not included elsewhere, such as maintenance of fences and roadways, telephone, and such miscellaneous expenses.
21. Report corn yield on basis of shelled corn.
24. By "by-product" is meant stover of corn, straw of grain, seed of cotton.
27. Applies to dry farming regions where summer fallow practices are followed.

Name..... Post Office.....
County..... State.....

PRODUCTION COSTS IN 1922 AND 1923

Replies to the questionnaire from 11,238 farmers, all over the United States, on the cost of producing their crops of corn in 1923 show an average cost of \$0.68 per bushel as compared with \$0.66 in 1922 on 3,363 farms. The average cost of producing wheat on 7,852 farms was \$1.24 per bushel, in 1923, compared with a cost of \$1.23 per bushel on 2,417 farms in 1922. The average cost of producing a bushel of oats on 8,481 farms was \$0.52 in 1923, and on 2,601 farms \$0.53 in 1922. Costs for these crops are shown in Table 1 by geographical divisions.

On an average, the cost per acre of corn, wheat, and oats was slightly higher in 1923 than in 1922, although the opposite was true

in some regions, as classified. With the exception of corn, the yields per acre on the farms reporting were slightly higher in 1923 than in 1922.

Although there was little difference in the average production costs per bushel for the two years, the value reported for corn on all farms averaged 8 cents higher in 1923 than in 1922, for wheat 12 cents less in 1923, and for oats 1 cent higher in 1923. In all of the geographical divisions the average prices of wheat in 1923 were less than in 1922, whereas in all but one region the average prices of corn and oats in 1923 were equal to or higher than the average prices in 1922.

TABLE 1.—*Comparative production costs in 1922 and 1923 (corn, wheat, and oats)*

Crops and geographical divisions	Number of reports		Net cost per acre		Net cost per bushel		Yield per acre (bushels)		Value of product per bushel	
	1922	1923	1922	1923	1922	1923	1922	1923	1922	1923
CORN										
North Atlantic.....	256	815	\$43.09	\$40.73	\$0.83	\$0.87	52	47	\$0.85	\$0.95
South Atlantic.....	557	1,655	25.01	25.57	.83	.85	30	30	.90	1.03
East North Central.....	669	2,714	25.83	26.77	.56	.61	46	44	.65	.72
West North Central.....	881	3,312	17.89	18.81	.53	.54	34	35	.57	.63
South Central.....	851	2,285	19.38	21.18	.75	.88	26	24	.84	.98
Western.....	119	457	20.14	19.02	.67	.66	30	29	.78	.73
United States.....	3,363	11,233	23.01	23.75	.66	.68	35	35	.73	.81
WHEAT										
North Atlantic.....	168	642	28.42	28.43	1.35	1.24	21	23	1.22	1.09
South Atlantic.....	355	961	22.45	22.42	1.60	1.60	14	14	1.30	1.27
East North Central.....	551	2,028	21.08	22.12	1.17	1.11	18	20	1.09	.98
West North Central.....	748	2,479	15.42	16.17	1.03	1.24	15	13	.95	.90
South Central.....	310	745	17.23	17.16	1.44	1.32	12	13	1.20	1.04
Western.....	285	997	22.90	23.95	1.09	1.09	21	22	1.05	.87
United States.....	2,417	7,852	19.68	21.02	1.23	1.24	16	17	1.11	.99
OATS										
North Atlantic.....	260	877	25.80	24.89	.68	.67	38	37	.58	.58
South Atlantic.....	326	834	18.82	19.14	.72	.74	26	26	.70	.76
East North Central.....	578	2,227	17.08	18.21	.47	.48	36	38	.43	.44
West North Central.....	835	2,974	14.37	15.31	.44	.45	33	34	.37	.38
South Central.....	388	865	15.65	15.84	.65	.63	24	25	.60	.61
Western.....	214	704	21.59	22.74	.58	.55	37	41	.61	.49
United States.....	2,601	8,481	17.40	18.08	.53	.52	33	35	.48	.49

CORN PRODUCTION COSTS, 1923

The average gross cost of producing an acre of corn on all farms tabulated amounted to \$26.40. With a credit of \$2.65 for stover and fodder, the net cost of production was \$23.75 per acre or \$0.68 per bushel for a yield of 35 bushels per acre. Fifty-three per cent of the total cost was for the work of preparing the seed bed, planting, cultivating, harvesting, and marketing; 15 per cent was for fertilizer and manure, 2 per cent was for seed, 22 per cent was for land rent, and 8 per cent was for miscellaneous items, such as twine, crop insurance, use of implements, use of storage buildings and a charge for general farm overhead expense.

The average sales value of the corn was \$0.81 per bushel, leaving a margin of \$0.13 per bushel or \$3.41 per acre above the net cost, after charging for all expenses, including family and operator labor and use of land. (See totals for the United States in Table 2.)

TABLE 2.—Corn: Cost of production by States, 1923

States	Num-ber of re-ports	Acres in corn per farm	Yield per acre (bush-els)	Gross cost per acre							Credit per acre (stover and fod-der)		Net cost		Value of corn	
				Pre-paring and plant	Culti-vate	Har-vest	Mar-ket	Mis-cel-laneous labor ¹	Com-mer-cial fer-tilizer	Ma-nure	Seed	Land rent	Mis-cel-laneous costs ¹	Total	Per acre	Per bushel
Vermont.....	25	5	52	\$11.49	\$5.22	\$8.42	\$3.88	\$0.05	\$4.37	\$17.50	\$1.31	\$7.36	\$3.87	\$63.47	\$46.87	\$56.93
Massachusetts.....	25	4	50	11.01	4.98	11.00	5.08	.04	9.04	23.16	1.09	9.50	4.15	80.55	65.10	55.00
Connecticut.....	24	9	59	13.24	7.48	13.98	6.75	.04	10.44	20.15	1.33	13.82	13.42	91.75	78.33	75.94
New York.....	210	6	39	7.47	4.77	6.51	3.05	.10	2.60	7.96	.77	6.77	3.20	43.63	35.43	37.94
New Jersey.....	73	15	52	6.75	4.32	6.11	3.70	.04	4.11	9.59	.44	7.60	3.20	49.26	41.31	48.62
Pennsylvania.....	434	12	49	6.96	5.41	8.27	3.69	.09	2.29	8.43	.51	6.11	3.48	45.14	38.03	47.76
Delaware.....	16	12	43	5.12	4.44	7.01	1.63	.06	.56	9.12	.45	6.73	3.07	38.49	31.51	34.89
Maryland.....	117	23	47	5.82	3.55	7.35	2.95	.08	.73	6.72	.43	6.62	2.76	31.99	27.01	37.66
Virginia.....	323	22	39	5.66	4.11	4.76	2.84	.08	1.73	6.75	.40	6.62	2.77	33.35	29.52	37.60
West Virginia.....	181	13	42	6.88	5.00	5.69	3.96	.05	2.01	3.75	.59	7.78	2.77	33.35	33.28	40.75
North Carolina.....	311	22	31	5.28	4.53	3.29	2.38	.09	4.08	2.65	.48	6.33	2.08	25.85	23.22	33.38
South Carolina.....	128	31	23	3.80	3.75	1.88	2.09	.09	4.08	2.65	.48	6.33	2.08	25.85	23.22	33.38
Georgia.....	524	40	18	3.47	3.38	1.62	1.59	.05	2.56	2.22	.52	4.44	2.24	20.70	1.80	19.80
Florida.....	50	38	24	4.08	3.51	7.26	2.72	.08	1.43	4.84	.37	6.65	2.67	35.38	3.93	18.20
Ohio.....	676	40	45	4.56	2.93	3.99	2.16	.09	1.07	2.63	.36	6.68	2.04	26.01	2.04	36.90
Indiana.....	649	40	41	3.76	2.63	3.04	1.81	.10	1.20	1.78	.40	6.97	1.87	22.56	1.18	24.57
Illinois.....	612	58	15	4.08	3.71	3.73	3.00	.10	.50	5.64	.52	5.42	2.52	34.13	5.14	28.84
Michigan.....	408	15	39	6.17	3.71	5.00	2.85	.10	.37	7.13	.69	6.69	2.59	34.33	5.35	30.92
Wisconsin.....	369	20	41	4.95	3.38	3.88	2.26	.14	.04	3.45	.54	8.87	2.29	24.35	2.17	28.94
Minnesota.....	573	64	46	3.70	2.66	3.38	2.12	.09	.03	2.16	.45	5.25	2.13	25.29	1.20	24.09
Iowa.....	567	41	33	3.69	2.88	2.69	2.26	.08	.26	1.77	.37	5.11	1.87	21.53	1.37	24.15
Missouri.....	242	31	32	3.56	2.06	3.02	1.78	.09	.03	1.10	.48	5.21	1.62	15.85	2.45	17.52
North Dakota.....	426	74	35	2.89	2.05	3.41	2.39	.32	.01	1.34	.38	3.47	1.90	18.58	1.04	18.46
South Dakota.....	458	35	26	2.05	2.05	2.80	1.75	.17	.01	1.12	.25	4.91	1.65	17.07	.57	20.11
Nebraska.....	593	61	26	2.46	2.08	2.15	1.54	.07	.04	.85	.28	4.09	1.34	14.90	1.19	18.46
Kansas.....	354	35	35	4.93	3.95	3.27	3.12	.07	1.56	1.81	.41	7.69	3.01	28.82	1.81	30.05
Tennessee.....	380	33	32	4.64	3.82	2.41	2.63	.06	.84	2.19	.40	6.90	2.84	26.23	1.46	30.50
Alabama.....	247	31	30	3.70	3.90	1.63	2.02	.02	1.87	.94	.43	4.52	3.38	21.41	1.58	22.43
Mississippi.....	240	50	19	3.93	3.58	2.03	2.12	.19	1.66	1.10	.45	5.17	3.08	22.38	.73	21.81
Louisiana.....	71	53	30	3.91	3.58	1.59	1.88	.10	1.45	.59	.50	5.10	2.72	22.11	.52	21.28
Texas.....	472	30	22	3.30	2.95	1.69	1.97	.20	.35	.66	.45	5.04	1.98	14.49	.81	20.26
Oklahoma.....	272	36	16	2.80	2.64	1.55	1.48	.07	.04	.79	.32	5.60	1.01	14.30	.73	14.03
Arkansas.....	345	32	21	4.18	4.39	1.86	2.33	.06	.73	.49	.45	5.06	1.93	18.43	1.53	21.37
Montana.....	132	27	24	4.56	2.28	3.22	2.97	.19	.80	.48	.48	2.06	1.63	13.69	1.09	15.90
Wyoming.....	64	39	29	3.83	1.74	2.84	2.63	.40	-----	.93	.32	2.65	1.40	16.74	2.59	17.76

¹ Includes miscellaneous labor, irrigating and water, spraying and spray material.² Sacks and twine, crop insurance, use of implements, use of storage buildings, and overhead.

TABLE 2.—*Corn: Cost of production by States, 1923—Continued*

States	Number of re-ports	Acres in corn per farm	Yield per acre (bush-els)	Gross cost per acre										Credit per acre (store and fod-der)	Net cost		Value of corn	
				Pre-pare and plant	Culti-vate	Har-vest	Mar-ket	Mis-cel-laneous labor	Com-mer-cial fer-ti-lizer	Ma-nure	Seed	Land rent	Mis-cel-laneous costs		Total	Per acre	Per bushel	Per acre
Colorado-----	109	58	28	\$3.11	\$1.81	\$2.58	\$2.21	\$1.00	\$0.02	\$0.82	\$0.33	\$3.72	\$1.63	\$17.23	\$15.83	\$0.57	\$17.21	\$0.58
New Mexico-----	47	55	22	3.53	2.51	2.01	1.82	1.52	.11	1.08	.47	4.89	2.66	20.60	18.61	.85	22.59	.92
Idaho-----	24	10	44	4.95	2.39	4.00	3.12	2.86	-----	2.29	.50	8.26	2.60	30.97	28.91	.66	32.44	.72
Washington-----	25	12	33	5.67	2.69	6.23	2.83	1.04	-----	1.88	.87	4.36	2.34	27.91	23.09	.70	31.40	1.01
Oregon-----	25	10	40	7.21	3.75	4.64	3.25	1.62	.24	4.45	.63	7.02	3.11	35.92	33.32	.83	41.97	1.00
United States total ³ -----	11, 238	39	35	4.42	3.29	3.80	2.31	.14	1.03	2.87	.44	5.81	2.29	26.40	23.75	.68	27.16	.81

³ The total for the United States includes 55 records from the following States in which there were not enough reports to show State averages: Maine, New Hampshire, Arizona, Utah, and California.

State average of costs.—Wide variations existed in the cost of producing the 1923 corn crop, as well as in the price received in the different States. The average cost and value per bushel for each of 41 States is given in Table 3. Of the 41 States, the average costs per bushel were 40 to 49 cents in 3 States; 50 to 59 cents in 7 States; 60 to 69 cents in 6 States; 70 to 79 cents in 8 States; 80 to 89 cents in 5 States; 90 to 99 cents in 4 States; \$1 to \$1.09 in 3 States; \$1.10 to \$1.19 in 3 States; and in 2 States the costs were above \$1.20 per bushel.

These differences in the average costs for different States are not so striking when the average value of the product is considered. The average value reported for corn in the three States with lowest costs, varied from \$0.57 to \$0.60 per bushel, whereas the average value of corn in the two States with highest costs was \$1.15 and \$1.33 per bushel. Between these two extremes, the general tendency was for the farmers in the States where value per bushel was high to report high production costs and for those in States of low prices to report low corn costs.

TABLE 3.—Corn: Variations in State averages of costs, prices, and yields, 1923

State	Net cost per bushel	Averages for farms reporting					State average yields ¹	
		Net cost per acre	Net cost per bushel	Price per bushel	Price above cost ²	Yield per acre (bushels)	1923 (bushels)	7-year average (bushels)
North Dakota.....	\$0.40 to \$0.49....	\$13.40	\$0.42	\$0.58	\$0.16	32	34	22
Nebraska.....		17.10	.49	.57	.08	35	33	26
Wyoming.....		14.15	.49	.60	.11	29	27	22
South Dakota.....		17.54	.50	.53	.03	35	34	29
Illinois.....	\$0.50 to \$0.59....	21.38	.52	.67	.15	41	38	34
Iowa.....		24.09	.52	.63	.11	46	41	38
Kansas.....		13.71	.53	.67	.14	26	22	17
Indiana.....		24.57	.55	.66	.11	45	38	36
Colorado.....		15.83	.57	.58	.01	28	25	19
Minnesota.....		22.18	.57	.62	.05	39	36	34
Missouri.....		20.21	.61	.74	.13	33	30	26
Ohio.....		31.45	.64	.76	.12	49	41	39
Montana.....	\$0.60 to \$0.69....	15.49	.65	.64	-.01	24	26	19
Idaho.....		28.91	.66	.72	.06	44	42	34
Maryland.....		31.80	.68	.80	.12	47	39	38
Virginia.....		27.01	.69	.98	.29	39	29	27
Washington.....		23.09	.70	1.01	.31	33	37	34
Wisconsin.....		29.03	.71	.75	.04	41	37	36
Delaware.....	\$0.70 to \$0.79....	31.51	.73	.80	.07	43	33	33
Michigan.....		28.99	.74	.78	.04	39	34	32
Tennessee.....		24.77	.77	.95	.18	32	24	26
Pennsylvania.....		38.03	.78	.91	.13	49	40	42
New Jersey.....		41.31	.79	.92	.13	52	40	40
West Virginia.....		33.28	.79	.99	.20	42	34	32
Kentucky.....	\$0.80 to \$0.89....	28.01	.80	.89	.09	35	28	28
Texas.....		17.76	.81	.96	.15	22	18	20
Oregon.....		33.32	.83	1.00	.17	40	35	31
New Mexico.....		18.61	.85	.92	.07	22	16	23
Oklahoma.....		13.71	.86	.84	-.02	16	12	18
Vermont.....		46.87	.90	1.05	.15	52	39	45
New York.....	\$0.90 to \$0.99....	35.43	.91	.97	.06	39	32	37
North Carolina.....		29.52	.95	1.09	.14	31	22	20
Alabama.....		19.83	.99	1.11	.12	20	15	15
South Carolina.....		23.22	1.01	1.07	.06	23	16	17
Georgia.....	\$1.00 to \$1.09....	18.88	1.05	1.10	.05	18	12	15
Arkansas.....		22.30	1.06	1.01	-.05	21	20	20
Florida.....		21.37	1.12	1.03	-.09	19	12	15
Louisiana.....		21.86	1.15	1.07	-.08	19	15	19
Mississippi.....	\$1.10 to \$1.19....	23.38	1.17	1.10	-.07	20	14	17
Massachusetts.....		65.10	1.30	1.15	-.15	50	43	46
Connecticut.....	\$1.20 and over....	78.33	1.33	1.33	.00	59	41	47

¹ State average yields obtained by the Division of Crop and Livestock estimates and published in the Yearbooks of the United States Department of Agriculture, carried to nearest whole number. Seven-year average yields for 1914 to 1920.

² Minus mark (—) indicates price below cost.

In considering the relative position of each State in the classification shown in Table 3, and other similar tables, it must be remembered that these figures are for only one year, and that any abnormal conditions in a particular State as to corn yields and quantities and values of cost factors would necessarily influence the position of the State for that year. It is probable also that in those States where there is great lack of uniformity in soil conditions a majority of the cost records were obtained from those farmers having the better crop land, and consequently better yields, than was the case in those States with more uniform land conditions.

The average price of corn reported by each farmer was probably based on the price received for corn sold during the fall and winter of 1923-24 and by the market price of corn at the time the questionnaires were answered, which was during the months of January and February, 1924.

In the lowest cost group, consisting of North Dakota, Nebraska, and Wyoming, the 1923 corn yields were much above the 7-year average shown in Table 3. In these States of large level fields and relatively low-priced land, acre costs were comparatively low, and with the good corn yields obtained in 1923, costs per bushel were relatively low. The next two groups, having costs of 50 to 69 cents per bushel, contain Middle West Corn Belt States, where fertile and level land is well adapted to the economical production of corn year after year. In these two cost groups appear other States, where the average yield of corn is much less than in 1923, and still less than was obtained on the farms reporting costs. In years of good corn yields such States may be low-cost producers, but on an average the yields appear too low to allow these States to be placed in the same cost group as the Corn Belt States.

The largest number of States—eight in all—is found in the 70 to 79 cent cost group. In many of these States more manure and fertilizer are used than in those in the previous groups; more labor is required to produce an acre, and, in general, acre costs are relatively high. In 1923 farmers in these States reported good corn yields, and costs were considerably lower than the price.

In the next two groups, with costs of 80 to 99 cents per bushel, the price was from 6 to 17 cents above cost, except in Oklahoma, where yields were relatively low in 1923.

The next three cost groups contain six Southern and two New England States. Except in South Carolina and Georgia, where relatively high yields were reported for 1923, costs were equal to or above the reported price of corn.

A detailed statement of costs by States is given in Table 2.

Cost of production by yield groups.—The farms are grouped according to yield per acre, and the itemized average costs per acre and per bushel are given in Table 4, both for the total number of records obtained and for those obtained in the Corn Belt, as defined in footnote 3. In both cases, there was a tendency for each item of cost and for the total cost per acre to increase as the yield of corn increased. These increases in acre costs were proportionately less than were the increases in acre yields, so that as yield increased the cost per bushel decreased. In 1923, 8,612 out of 11,023 farms yielded 18 to 57 bushels of corn per acre. These 8,612 farms are divided into four yield groups, with average costs of 90, 70, 61, and 57 cents per bushel.

TABLE 4.—Corn: Cost of production by yield groups, 1923

Yield (bushels per acre)	Num-ber of re-ports	Acres in corn per farm	Yield per acre (bush-els)	Gross cost, per acre								Credit per acre (stover and fodder)	Net cost		Value of corn		
				Pre-prepare and plant	Culti-vate	Har-vest	Mar-ket	Mis-cellaneous labor ¹	Ferti-lizer and ma-nure	Seed	Land rent		Mis-cellaneous costs ²	Total	Per acre	Per bushel	Per acre
ALL REPORTS																	
7 bushels and under	156	37	5	\$3.31	\$3.16	\$1.42	\$1.02	\$0.07	\$1.67	\$0.35	\$3.46	\$1.82	\$16.28	\$15.25	\$3.05	\$5.13	\$0.92
8 to 17 bushels	1,283	36	13	3.57	3.28	1.88	1.48	.13	2.26	.42	3.87	2.19	19.08	17.43	1.34	12.47	.96
18 to 27 bushels	2,201	37	22	3.93	3.15	2.53	1.95	.12	2.66	.43	4.88	2.11	21.76	19.76	.90	19.50	.88
28 to 37 bushels	2,450	41	32	4.32	3.16	3.50	2.25	.16	3.41	.42	5.36	2.40	24.98	22.49	.70	24.68	.77
38 to 47 bushels	2,423	43	41	4.53	3.17	4.32	2.34	.15	3.93	.42	6.46	2.20	27.61	24.90	.61	30.07	.74
48 to 57 bushels	1,538	38	51	5.05	3.44	5.38	2.78	.17	5.32	.46	7.44	2.64	32.68	29.24	.57	37.43	.74
58 to 67 bushels	624	35	61	5.53	3.54	6.46	2.92	.13	6.95	.50	8.16	2.92	37.11	32.90	.54	45.82	.76
68 to 77 bushels	214	19	72	6.22	4.33	7.64	3.37	.17	10.26	.60	8.20	3.44	44.23	37.97	.53	59.69	.83
78 bushels and over	124	17	88	7.47	4.58	7.93	3.98	.27	11.70	.69	8.15	4.16	48.93	42.28	.48	72.30	.86
CORN BELT ³																	
7 bushels and under	52	38	13	3.23	2.46	2.28	1.39	.09	1.36	.37	3.79	1.38	16.35	15.16	1.17	9.25	0.72
8 to 17 bushels	258	49	23	3.40	2.48	2.51	1.64	.06	1.71	.32	4.70	1.79	18.61	17.41	.76	15.67	.68
18 to 27 bushels	661	56	32	3.59	2.60	2.92	1.81	.11	2.09	.34	5.73	1.80	20.99	19.57	.61	21.53	.67
28 to 37 bushels	1,011	59	41	3.84	2.69	3.40	1.92	.08	2.41	.36	6.99	1.94	23.63	22.25	.54	26.59	.64
38 to 47 bushels	708	54	51	4.04	2.78	4.07	2.25	.11	2.60	.41	7.91	2.18	26.35	24.79	.49	32.66	.64
48 to 57 bushels	284	50	61	4.40	2.71	4.73	2.45	.06	3.75	.46	8.67	2.68	29.91	27.75	.45	39.11	.65
58 to 67 bushels	58	30	71	5.14	3.26	5.63	2.64	.16	4.62	.43	9.43	2.38	33.69	30.24	.43	47.89	.67
68 to 77 bushels	14	30	87	8.36	2.96	6.71	2.34	-----	8.92	.64	6.56	2.93	39.42	37.01	.43	55.39	.65
78 bushels and over	14	30	87	8.36	2.96	6.71	2.34	-----	8.92	.64	6.56	2.93	39.42	37.01	.43	55.39	.65

¹ Includes miscellaneous labor, irrigating and water, and seed treatment and material.

² Includes sacks and twine, crop insurance, use of implements, use of storage buildings and overhead.

³ "Corn Belt" as used here includes Indiana, Illinois, Iowa, western Ohio, southeast corner of South Dakota, eastern Nebraska, northeast corner of Kansas, and the northern three-fourths of Missouri.

TABLE 5.—*Corn: Distribution of reports by yield groups, 1923*

States	Yield per acre and number of farms								
	7 bush-els and under	8 to 17 bush-els	18 to 27 bush-els	28 to 37 bush-els	38 to 47 bush-els	48 to 57 bush-els	58 to 67 bush-els	68 to 77 bush-els	78 bush-els and over
Maine.....				2	2	2	2	1	
New Hampshire.....			1	1	1	5	3	2	
Vermont.....		1	1	5	5	1	2	3	5
Massachusetts.....		1	1	3	4	7	5	3	1
Rhode Island.....									
Connecticut.....			1		3	8	5	4	3
New York.....	2	12	37	46	38	35	12	5	8
New Jersey.....			3	9	18	16	12	11	3
Pennsylvania.....		9	27	56	113	98	47	47	27
Delaware.....			1	4	5	6			1
Maryland.....		2	5	16	26	36	25	6	
Virginia.....		13	55	84	87	49	27	9	4
West Virginia.....			9	16	50	45	31	17	9
North Carolina.....	2	33	107	90	49	16	7	5	2
South Carolina.....	1	34	53	28	10	3			
Georgia.....	29	248	182	34	14	4	3		3
Florida.....	5	27	9	4	1	2			
Ohio.....		5	19	77	169	219	123	38	22
Indiana.....		8	26	113	229	159	84	19	6
Illinois.....		10	48	156	204	142	46	6	
Michigan.....	1	15	55	120	114	64	21	7	8
Wisconsin.....	1	12	38	88	100	79	18	17	9
Minnesota.....		7	48	127	159	84	15	6	1
Iowa.....			11	67	225	199	64	6	
Missouri.....	3	43	127	183	129	49	24	2	1
North Dakota.....	1	13	52	95	54	10	3		
South Dakota.....		10	83	148	127	47	6		
Nebraska.....		5	76	177	147	36	12	2	
Kansas.....	29	113	156	123	94	35	10	1	2
Kentucky.....		17	51	94	62	26	6	1	
Tennessee.....	2	27	95	135	78	27	6	4	1
Alabama.....	4	100	107	24	7	4			
Mississippi.....	12	73	118	22	9		1		1
Louisiana.....	5	20	38	3	2				
Texas.....	21	129	201	74	26	2	2		1
Oklahoma.....	33	106	75	26	9	2	1		
Arkansas.....	7	117	140	46	13	3	3		1
Montana.....	1	24	51	34	11	3	1		
Wyoming.....		3	26	20	6	5			
Colorado.....	2	14	38	29	12	8		1	1
New Mexico.....	5	14	7	8		4	1		
Arizona.....				2	2				
Utah.....			1	7	2	2	1	1	
Nevada.....									
Idaho.....		1	3	5	4	4	3		2
Washington.....		5	6	7	2	1		4	
Oregon.....		3	2	7	6	1	3		2
California.....			4	1		4			
United States.....	166	1, 283	2, 201	2, 450	2, 423	1, 538	624	214	124
CORN BELT ¹									
Ohio.....			4	13	59	84	51	22	6
Indiana.....		8	26	113	229	159	84	19	6
Illinois.....		10	48	156	204	142	46	6	
Iowa.....			11	67	225	199	64	6	
Missouri.....		20	78	148	104	44	22	2	1
South Dakota.....			14	31	40	29	3		
Nebraska.....		5	32	81	107	28	7	2	
Kansas.....		9	45	52	43	23	7	1	1
Total.....		52	258	661	1, 011	708	284	58	14

¹ "Corn belt," as used here, includes Indiana, Illinois, Iowa, western Ohio, southeast corner of South Dakota, eastern Nebraska, northeast corner of Kansas, and the northern three-fourths of Missouri.

In the Corn Belt 2,380 out of 3,046 farmers had yields of 28 to 57 bushels per acre. These were divided into three yield groups, with average costs of 61, 54, and 49 cents per bushel.

Although corn yields in 1923 were generally good, there was much variation in the yields on individual farms in each State. (See Table

5.) Of the farmers reporting, 44 per cent had yields of 28 to 47 bushels per acre; 20 per cent, 18 to 28 bushels; 13 per cent, below 18 bushels; and 23 per cent had yields above 47 bushels. Of the "corn belt," farmers 78 per cent reported yields of 28 to 57 bushels per acre; 10 per cent below 28 bushels; and 12 per cent reported above 57 bushels per acre.

WHEAT PRODUCTION COSTS, 1923

The reports on the cost of producing wheat showed an average gross cost of \$22.88 per acre. The credit for straw was \$1.86 per acre, leaving an average net cost of \$21.02 per acre and \$1.24 per bushel, for an average yield of 17 bushels per acre. Preparing the seed bed, planting, harvesting, threshing, and marketing made up 45 per cent of the cost; fertilizer and manure, 11 per cent; seed, 7 per cent; land rent, 26 per cent, and miscellaneous items (sacks, twine, crop insurance, use of implements and storage buildings, and general overhead), 11 per cent.

The average sales value per bushel was \$0.99 and the value per acre was \$4.38 less than the cost per acre. These figures indicate that many farmers did not receive sufficient income from the 1923 crop of wheat to pay all cash expenses of production and allow them going wages for their time and the cash rental value of their land as reported. (See totals for the United States in Table 6.)

State averages of wheat costs.—Sufficient reports were not received to show averages for all States, and of the 35 State averages shown, some are based on a limited number of reports. As in the case of the corn crop of 1923, there was a tendency for production costs to increase in the States that had high wheat values and to decrease in the States where values were low. In 1923, the average wheat costs in all of the 35 States were greater than the reported wheat prices, as follows: Five States showed an average cost above price of 1 to 10 cents; 9 States showed an average cost above price of 11 to 20 cents; 11 States showed an average cost above price of 21 to 30 cents; 4 States showed an average cost above price of 31 to 40 cents; 6 States showed an average cost above price of 41 to 51 cents.

In 1923, most of the States that had costs of \$0.96 to \$1.20 per bushel were located in the Corn Belt, the Central Plains spring wheat area, and the Pacific Northwest. (See Table 7.)

Of the 10 States with costs of \$1.21 to \$1.40 per bushel, 4 are located in the eastern part of the United States, 3 are in the central winter wheat area, and the other 3—Kentucky, Wisconsin, and Texas—are scattered. North Dakota, an important spring wheat State, was grouped with Tennessee, Virginia, and West Virginia in the class having costs of \$1.41 to \$1.60 per bushel. The four States with the highest costs of production were Arkansas, South Carolina, North Carolina, and Georgia.

TABLE 6.—Wheat: Cost of production by States, 1923

States	Number of reports	Acres in wheat per farm	Yield per acre (bushels)	Gross cost per acre										Net cost		Value of wheat		
				Prepare and plant	Harvest and thresh	Market	Miscellaneous labor ¹	Commercial fertilizer	Manure	Seed	Land rent	Miscellaneous costs ²	Total	Credit per acre (straw)	Per acre	Per bushel	Per bushel	Per acre
New York.....	174	12	25	\$6.90	\$6.21	\$1.82	\$0.17	\$2.82	\$4.18	\$2.63	\$7.13	\$3.66	\$35.52	\$5.26	\$30.26	\$1.21	\$27.39	\$1.13
New Jersey.....	48	11	24	5.91	7.07	1.71	.17	5.02	3.62	2.53	6.75	2.94	35.72	6.50	29.22	1.22	26.83	1.11
Pennsylvania.....	408	15	22	6.48	5.84	2.03	.19	3.24	3.91	2.27	5.63	3.72	33.31	6.05	27.26	1.24	22.83	1.06
Maryland.....	112	35	20	5.49	5.20	1.41	.14	4.10	1.98	1.94	6.45	3.31	30.02	4.49	25.53	1.28	20.30	.99
Virginia.....	259	23	15	4.79	4.48	1.39	.24	2.98	1.50	1.85	5.14	2.79	25.16	2.00	23.16	1.50	17.70	1.14
West Virginia.....	121	15	15	5.12	4.92	2.10	.35	2.69	1.52	2.26	5.53	2.40	26.89	3.29	23.60	1.57	17.16	1.16
North Carolina.....	183	12	13	4.91	4.36	1.44	.21	2.99	1.93	1.84	5.35	2.36	25.39	2.07	23.32	1.79	17.55	1.34
South Carolina.....	56	9	13	3.19	4.44	1.34	.35	2.81	1.12	1.87	5.91	2.44	23.47	1.79	21.68	1.67	20.24	1.58
Georgia.....	221	8	10	2.95	3.99	1.26	.18	2.48	1.26	1.77	4.81	2.05	20.67	3.01	19.22	1.92	15.54	1.49
Ohio.....	616	20	21	4.64	5.29	1.38	.14	2.74	1.61	2.16	6.05	2.42	23.98	2.02	21.96	1.10	18.93	.97
Indiana.....	533	28	20	4.18	4.30	1.14	.13	2.36	1.51	1.81	6.07	2.42	20.40	2.24	19.16	.96	18.66	.94
Illinois.....	411	43	20	3.54	4.21	1.03	.13	2.36	1.51	1.81	6.07	2.42	20.40	2.24	19.16	.96	18.66	.94
Michigan.....	339	16	20	5.95	4.84	1.55	.16	1.53	2.85	2.03	5.38	2.51	26.80	3.14	23.66	1.18	19.75	.99
Wisconsin.....	129	8	17	4.29	3.95	1.62	.11	1.53	2.61	2.07	6.24	2.52	23.71	2.85	20.86	1.23	16.93	.96
Minnesota.....	300	35	15	3.52	3.84	1.11	.24	.06	.90	1.74	4.88	2.27	18.63	.78	17.85	1.19	13.70	.96
Iowa.....	194	21	19	3.00	4.13	1.29	.17	.08	.61	1.81	7.51	2.27	20.80	1.15	19.65	1.03	16.87	.88
Missouri.....	395	35	15	3.72	3.96	1.13	.15	1.11	1.12	1.85	4.81	2.02	19.87	1.21	18.66	1.24	14.13	.96
North Dakota.....	411	147	9	3.25	3.11	.68	.16	.01	.25	1.34	2.49	1.69	12.98	.32	12.66	1.41	7.68	.90
South Dakota.....	318	77	12	2.90	3.32	1.02	.21	.03	.32	1.36	3.21	2.03	13.97	.41	13.57	1.13	9.43	.80
Nebraska.....	316	61	13	2.96	3.90	.86	.26	.01	.54	1.25	5.07	2.11	16.96	.49	16.55	1.27	11.08	.85
Kansas.....	545	124	15	3.24	4.17	.84	.15	.01	.50	1.22	4.10	1.80	16.18	.49	15.69	1.21	11.36	.89
Kentucky.....	139	25	15	3.66	4.67	1.52	.24	1.81	.79	1.63	5.57	2.37	22.33	1.76	20.57	1.37	16.47	1.13
Tennessee.....	193	21	13	3.01	3.66	1.17	.13	1.68	1.28	1.59	5.19	2.22	20.86	1.60	19.26	1.48	14.62	1.16
Texas.....	148	90	12	2.87	4.08	1.03	.43	1.68	1.28	1.59	5.19	2.22	20.86	1.60	19.26	1.48	14.62	1.16
Oklahoma.....	207	100	12	2.75	4.05	.87	.19	.03	.54	1.11	4.20	2.13	16.00	.65	15.35	1.23	12.10	.98
Arkansas.....	47	12	12	3.75	5.02	1.39	.53	.07	.34	1.13	3.13	1.42	14.09	.56	13.53	1.13	10.80	.89
Montana.....	283	135	15	4.71	4.03	1.84	.57	.02	.32	1.32	3.32	2.20	21.34	2.03	19.31	1.61	13.63	1.11
Wyoming.....	86	52	18	4.01	3.79	2.14	1.02	.02	.32	1.10	3.33	2.40	18.32	.84	17.48	1.09	13.78	.88
Colorado.....	122	62	21	3.82	5.22	1.60	2.34	.02	.32	1.06	3.57	2.07	18.65	1.06	17.59	1.98	13.78	.85
New Mexico.....	27	104	17	3.31	3.16	1.86	1.96	.02	1.01	1.37	3.17	2.11	18.07	1.62	16.45	1.07	18.54	.96
Utah.....	71	95	32	5.69	7.24	2.08	3.23	.04	3.45	.72	13.05	3.30	40.31	.69	38.10	1.19	28.68	.92
Idaho.....	113	92	28	4.71	6.36	1.77	1.67	.03	.65	1.44	9.72	3.04	29.81	1.33	29.12	1.04	22.96	.96
Washington.....	165	227	28	4.74	6.36	1.68	.61	.07	.09	.53	10.07	3.80	28.39	1.33	27.06	1.07	22.64	.82
Oregon.....	75	180	24	4.87	6.36	1.87	.61	.07	.09	.53	10.07	3.26	27.62	.68	26.94	1.09	22.75	.82
California.....	49	162	22	4.14	5.01	1.35	.80	.01	.60	1.69	8.06	3.23	24.89	.83	24.06	1.22	22.87	1.05
Total ³	7,852	57	17	4.14	4.47	1.28	.31	1.25	1.33	1.69	5.99	2.42	22.88	1.86	21.02	1.24	16.64	.99

¹ Includes miscellaneous labor, irrigating and water, spraying and spray material.² Sacks and twine, crop insurance, use of implements, use of storage buildings and overhead.³ The total includes 38 reports from the following States in which there were not enough reports to show State averages: Maine, Delaware, Alabama, and Arizona.

The position of each State in Table 7, with respect to cost per bushel of wheat, is largely influenced by the yield obtained in 1923. In that year, the average yield as reported by the Division of Crop and Livestock Estimates was lower than the 7-year average yield (1914-1920) in 17 of the 35 States, higher in 10 of the States, and the same in 8 States. The average yield of wheat on the farms reporting by questionnaire, in 1923, was greater than the average yields of their respective States, as reported by the Division of Crop and Livestock Estimates, in 31 of the 35 States.

In State averages compiled for a number of years unusual differences in yields and cost factors, in particular States, tend to disappear. Use of such averages would change the position of some of the States, as given in Table 7 for 1923, to a position that might be considered more representative.

TABLE 7.—Wheat: Variations in State averages of costs, prices, and yields, 1923

State	Net cost per bushel	Net cost per acre	Averages for farms reporting				State average yields ¹	
			Net cost per bushel	Price per bushel	Price below cost	Yield per acre (bus.)	1923 (bus.)	7-year average (bus.)
Illinois.....	\$1.00 and less....	\$19.16	\$0.96	\$0.94	\$0.02	20	18	17
Washington.....		27.06	.97	.82	.15	23	25	19
New Mexico.....		16.45	.97	.96	.01	17	12	19
Wyoming.....		17.59	.98	.81	.17	18	16	22
Iowa.....		19.65	1.03	.88	.15	19	18	18
Idaho.....	\$1.01 to \$1.20....	29.12	1.04	.79	.25	28	29	23
Colorado.....		22.57	1.07	.85	.22	21	13	19
Montana.....		17.48	1.09	.88	.21	16	15	15
California.....		24.06	1.09	1.05	.64	22	22	16
Indiana.....		21.96	1.10	.97	.13	20	16	17
Oregon.....		26.94	1.12	.92	.20	24	24	19
Ohio.....		23.74	1.13	1.01	.12	21	18	18
South Dakota.....		13.57	1.13	.80	.33	12	10	10
Oklahoma.....		13.53	1.13	.89	.24	12	11	14
Michigan.....		23.66	1.18	.98	.20	20	17	18
Minnesota.....		17.85	1.19	.96	.23	15	12	13
Utah.....		38.10	1.19	.92	.27	32	24	21
New York.....		30.26	1.21	1.13	.08	25	20	22
Kansas.....		15.69	1.21	.89	.32	13	10	14
New Jersey.....		29.22	1.22	1.11	.11	24	20	18
Wisconsin.....	\$1.21 to \$1.40....	20.86	1.23	.99	.24	17	17	19
Pennsylvania.....		27.26	1.24	1.06	.18	22	19	18
Missouri.....		18.66	1.24	.96	.28	15	13	14
Nebraska.....		16.55	1.27	.85	.42	13	10	16
Maryland.....		25.53	1.28	.99	.29	20	19	17
Texas.....	\$1.41 to \$1.60....	15.35	1.28	.98	.30	12	10	13
Kentucky.....		20.57	1.37	1.13	.24	15	12	12
North Dakota.....		12.66	1.41	.90	.51	9	7	10
Tennessee.....		19.26	1.48	1.16	.32	13	10	10
Virginia.....		22.46	1.50	1.14	.36	15	13	13
West Virginia.....		23.60	1.57	1.16	.41	15	13	14
Arkansas.....		19.31	1.61	1.11	.50	12	11	12
South Carolina.....		21.68	1.67	1.58	.09	13	11	11
North Carolina.....		23.32	1.79	1.34	.45	13	11	10
Georgia.....		19.22	1.92	1.49	.43	10	9	10

¹State average yields obtained by the Division of Crop and Livestock Estimates and published in the yearbooks of the United States Department of Agriculture, carried to the nearest whole number; 7-year average yields for 1914 to 1920.

Cost of production by yield groups.—In Table 8, the farms are classified according to yield per acre, and itemized average costs per acre and per bushel are shown for the total reports obtained, and for those obtained from the principal commercial winter and spring wheat belts, as defined in footnotes 4 and 5. In all three divisions, there was a tendency for acre costs to increase as yields increased and for bushel costs to decrease with increased yields.

TABLE 8.—Wheat: Cost of production by yield groups, 1923

Yield (bushels per acre)	Num-ber of reports	Acres in wheat per farm	Yield per acre (bush-els)	Gross cost per acre								Credit per acre (straw)	Net cost		Value of wheat		
				Prep-are and plant	Har-vest 1	Mar-ket	Miscel-laneous labor 2	Fertil-izer and manure	Seed	Land rent	Miscel-laneous costs 3		Total	Per acre	Per bushel	Per acre	Per bushel
ALL REPORTS																	
3 bushels and under	69	123	2	\$3.36	\$3.00	\$0.76	\$0.20	\$0.67	\$1.31	\$3.36	\$2.00	\$14.66	\$0.67	\$13.99	\$7.00	\$2.52	\$0.98
4 to 6 bushels	387	97	5	3.10	2.94	.72	.15	1.00	1.42	3.30	1.75	14.26	.67	13.59	2.72	5.19	.97
7 to 9 bushels	709	83	8	3.35	3.26	.79	.16	1.20	1.52	3.57	1.84	15.59	.83	14.76	1.85	7.89	.97
10 to 12 bushels	1,525	59	11	3.51	3.69	1.04	.24	1.39	1.84	4.33	2.08	18.31	1.20	17.11	1.56	11.44	1.02
13 to 15 bushels	1,887	50	15	3.87	4.18	1.17	.24	2.23	1.58	5.25	2.29	20.80	1.55	19.25	1.28	11.44	.99
16 to 18 bushels	1,833	47	17	4.23	4.52	1.31	.22	2.36	1.72	6.17	2.47	23.42	2.00	21.42	1.26	17.11	1.00
19 to 21 bushels	1,191	45	20	4.16	5.05	1.51	.27	3.36	1.72	7.18	2.76	26.12	2.36	23.76	1.19	18.80	.99
22 to 24 bushels	435	42	23	5.02	5.11	1.43	.25	3.99	1.91	8.25	2.93	28.70	2.77	25.99	1.13	22.57	.98
25 to 27 bushels	668	47	25	5.03	5.51	1.67	.39	4.10	1.92	9.19	2.93	30.74	3.11	27.63	1.11	24.94	.98
28 to 30 bushels	458	30	30	6.36	6.08	1.90	.66	3.74	2.03	10.91	3.23	33.53	3.48	30.43	1.02	29.15	.99
31 bushels and over	357	41	38	5.15	7.21	1.88	1.30	3.52	2.63	10.91	3.83	35.83	3.41	32.42	.85	31.83	.93
WINTER WHEAT BELT 4																	
3 bushels and under	22	177	2	3.04	3.14	1.06	.16	.21	1.13	3.27	1.51	13.52	.30	13.22	6.61	2.28	.79
4 to 6 bushels	100	141	5	2.87	3.20	.62	.05	.61	1.16	3.21	1.58	13.30	.29	13.10	2.62	4.43	.83
7 to 9 bushels	164	90	8	2.98	3.43	.59	.12	.55	1.29	3.49	1.51	13.96	.45	13.51	1.69	7.02	.87
10 to 12 bushels	303	82	14	3.06	3.71	.85	.27	1.18	1.24	3.92	1.98	16.21	.80	15.41	1.40	10.00	.91
13 to 15 bushels	306	71	17	3.50	4.15	1.09	.12	1.08	1.23	4.52	1.86	17.25	.77	16.42	1.17	13.20	.92
16 to 18 bushels	176	75	17	3.50	4.54	1.02	.25	1.07	1.33	5.01	2.05	18.77	.68	18.09	1.06	15.69	.92
19 to 21 bushels	152	65	20	3.68	5.28	1.18	.28	1.48	1.31	5.70	2.39	20.86	.71	20.15	1.01	18.43	.92
22 to 24 bushels	37	45	23	3.50	5.03	1.24	.08	1.46	1.31	5.70	2.39	20.86	.84	21.65	.84	21.65	.95
25 to 27 bushels	33	44	25	3.80	5.89	1.34	.30	2.55	1.38	6.78	2.78	24.82	.88	23.94	.96	23.38	.92
28 bushels and over	19	37	34	4.52	7.03	1.60	.17	.93	1.88	5.81	2.95	24.89	1.12	23.77	.70	26.89	.82
SPRING WHEAT BELT 5																	
3 bushels and under	17	190	2	3.13	2.47	.39	.05	.13	1.26	2.30	2.52	12.25	.08	12.17	6.08	1.99	.91
4 to 6 bushels	123	130	5	3.25	2.62	.57	.18	.22	1.31	2.50	1.86	12.51	.33	12.18	2.44	4.41	.85
7 to 9 bushels	235	134	8	3.15	2.95	.71	.12	.25	1.36	2.56	1.92	13.02	.30	12.72	1.59	7.07	.87
10 to 12 bushels	270	111	11	3.12	3.33	.85	.21	.44	1.43	3.16	2.04	14.58	.33	14.25	1.30	9.54	.92
13 to 15 bushels	110	14	14	3.40	3.74	1.01	.14	.55	1.48	3.60	2.29	16.21	.32	15.89	1.14	12.91	.91
16 to 18 bushels	34	68	17	3.77	4.01	1.63	.09	.48	1.47	3.46	1.91	16.82	.56	16.26	.96	15.92	.94
19 to 21 bushels	27	47	20	4.21	4.79	1.61	.51	1.33	1.59	4.14	3.18	21.36	.77	20.59	1.03	18.09	.94
22 bushels and over	9	51	30	3.09	4.26	1.92	.09	.75	1.53	7.69	1.23	20.56	.64	19.92	.66	21.50	.80

1 Threshing is included under harvesting.

2 Includes miscellaneous labor, irrigating and water, spraying and spray material.

3 Includes sacks and twine, crop insurance, use of implements, use of storage buildings, and overhead.

4 "Winter wheat belt," as used here, includes Kansas, Nebraska, Missouri, and Oklahoma.

5 "Spring wheat belt," as used here, includes western Minnesota, North Dakota, and eastern Montana.

More than 4,200 of the 7,719 farmers reported yields varying from 7 to 18 bushels per acre and were classified in 4 of the 11 yield groups. The average cost per bushel for these four groups was \$1.85, \$1.56, \$1.28, and \$1.26.

Of the 1,402 farms in the winter wheat belt, 1,039 reported yields of 7 to 18 bushels per acre. These were classified in four yield groups, having average costs of \$1.69, \$1.40, \$1.17, and \$1.06 per bushel.

In the spring wheat States, 738 of the 825 farms reported yields of 4 to 15 bushels per acre. Those with yields of 4 to 6 bushels had an average cost of \$2.44 per bushel, those with yields of 7 to 9 bushels had an average cost of \$1.59, those with yields of 10 to 12 bushels had an average cost of \$1.30, and those with yields of 13 to 15 bushels an average cost of \$1.14 per bushel.

In 1923, wheat yields on the farms for which reports were received varied from less than 3 bushels per acre to over 31 bushels. However, 70 per cent, produced yields of 7 to 21 bushels per acre. Only 6 per cent had yields of less than 7 bushels, and 24 per cent of the farms yielded over 21 bushels per acre.

In the winter wheat States of Kansas, Nebraska, Missouri, and Oklahoma, nearly 50 per cent of the farmers reported yields of 10 to 15 bushels per acre, 20 per cent reported less than 10 bushels, and 30 per cent reported yields of more than 15 bushels per acre.

In the spring wheat area, as represented by North Dakota and portions of Minnesota, South Dakota, and Montana, 61 per cent of the farmers reported wheat yields varying from 7 to 12 bushels per acre, 17 per cent reported less than 7 bushels per acre, and 22 per cent reported yields of more than 12 bushels per acre. (See Table 9.)

TABLE 9.—Wheat: Distribution of reports by yield groups, 1923

States	Yield per acre and number of farms										
	3 bushels and under	4 to 6 bushels	7 to 9 bushels	10 to 12 bushels	13 to 15 bushels	16 to 18 bushels	19 to 21 bushels	22 to 24 bushels	25 to 27 bushels	28 to 30 bushels	31 bushels and over
Maine.....					1	1	2		2	2	3
New Hampshire.....											
Vermont.....							1		1	2	1
Massachusetts.....							1				
Rhode Island.....											
Connecticut.....											
New York.....	1			4	11	7	32	27	32	34	24
New Jersey.....				1	4	3	13	5	8	10	4
Pennsylvania.....		3	6	21	45	57	98	49	56	40	28
Delaware.....					2	2	3	1	2		
Maryland.....				4	18	22	32	9	18	7	2
Virginia.....	1	5	21	63	57	46	41	11	6	7	1
West Virginia.....	2	5	8	30	26	14	23	7	2	1	1
North Carolina.....		14	23	66	43	17	16	1	5	2	1
South Carolina.....		6	5	23	16					2	
Georgia.....	10	37	44	83	14	12	2	1	2	3	
Florida.....											
Ohio.....		4	15	42	80	70	133	73	85	68	43
Indiana.....	1	3	6	52	85	84	137	43	61	41	15
Illinois.....	1	6	16	48	44	56	84	45	57	29	25
Michigan.....	1	1	9	30	36	52	83	42	38	29	13
Wisconsin.....		5	4	20	22	19	29	7	11	7	1
Minnesota.....	1	8	41	75	81	29	36	7	8	4	6
Iowa.....			4	28	36	21	46	12	23	14	7
Missouri.....		14	33	103	100	60	50	13	12	4	3
North Dakota.....	13	89	141	122	38	5	1				
South Dakota.....	3	26	57	129	48	26	19	4	4		
Nebraska.....	5	32	27	91	58	38	39	6	10		2

TABLE 9.—*Wheat: Distribution of reports by yield groups, 1923—Continued*

States	Yield per acre and number of farms										
	3 bushels and under	4 to 6 bushels	7 to 9 bushels	10 to 12 bushels	13 to 15 bushels	16 to 18 bushels	19 to 21 bushels	22 to 24 bushels	25 to 27 bushels	28 to 30 bushels	31 bushels and over
Kansas.....	14	42	74	137	99	53	51	16	11	6	3
Kentucky.....		7	18	44	20	18	14	7		3	3
Tennessee.....	1	12	28	74	42	12	14	1	2	2	2
Alabama.....		1	2	3	2	1	1				
Mississippi.....					2						
Louisiana.....											
Texas.....	1	10	27	44	32	13	12	2			1
Oklahoma.....	3	12	31	62	49	25	12	2			1
Arkansas.....		3	14	13	3	5	3		1	1	
Montana.....	6	20	36	51	36	32	46	11	17	19	7
Wyoming.....	1	4	5	22	7	4	15		10	9	7
Colorado.....	3	12	10	18	8	2	10	4	10	13	27
New Mexico.....		4		5	4		2			3	4
Arizona.....								1	1	2	2
Utah.....				2	2	2	6	2	14	12	30
Nevada.....											
Idaho.....			1	3	5	2	19	6	14	26	36
Washington.....		1	1	5	8	11	23	9	27	38	39
Oregon.....				2	7	6	22	4	10	13	10
California.....	1		2	5	6	6	7	7	5	5	5
United States.....	69	387	709	1,525	1,187	833	1,191	435	568	458	357
WINTER WHEAT BELT ¹											
Missouri.....		14	33	103	100	60	50	13	12	4	3
Nebraska.....	5	32	26	91	58	38	39	6	10		2
Kansas.....	14	42	74	137	99	53	51	16	11	6	3
Oklahoma.....	3	12	31	62	49	25	12	2			1
Total.....	22	100	164	393	306	176	152	37	33	10	9
SPRING WHEAT BELT ¹											
Minnesota.....	1	6	37	45	38	10	18	1	1		4
North Dakota.....	13	89	141	122	38	5	1				
South Dakota.....	2	19	38	84	25	10	4	1			
Montana.....	1	9	19	19	9	9	4	1	1		
Total.....	17	123	235	270	110	34	27	3	2		4

¹ See footnotes 4 and 5 on Table 8 for States included in spring and winter wheat belts.**OAT PRODUCTION COSTS, 1923**

A summary of the 8,481 reports on the cost of producing oats showed an average gross cost per acre of \$20.23, a credit of \$2.15 for straw, and a net cost of \$18.08 per acre. The average yield was 35 bushels per acre, making an average net cost per bushel of \$0.52. The distribution of the costs was as follows: Man and horse labor for preparing seed bed, planting, harvesting, threshing, and marketing 49 per cent; fertilizer and manure 7 per cent; seed 7 per cent; land rent 26 per cent; and for sacks, twine, crop insurance, use of implements and storage buildings, and general overhead, 11 per cent.

The average sales value was \$0.49 per bushel, or \$0.03 per bushel (\$1.70 per acre) less than the cost. This would cover all expenses except land rent, including the value of the labor of the farmer and his family, and would leave enough margin to take care of 67 per cent of the cash rent reported or to pay 4 per cent on the average investment in land. (See totals for the United States in Table 10.)

TABLE 10.—Oats: Cost of production by States, 1923

States	Num-ber of re-ports	Acres in oats per farm	Yield per acre (bush-els)	Gross cost per acre								Credit per acre (straw)		Net cost		Value of oats	
				Pre-prepare and plant	Har-vest thresh	Market	Mis-cel-lane-ous labor ¹	Com-mercial fer-ti-lizer	Ma-nure	Seed	Land rent	Mis-cel-lane-ous costs ²	Total	Per acre	Per bushel	Per acre	Per bushel
Maine.....	48	11	48	\$7.26	\$8.78	\$2.49	\$0.65	\$3.38	\$5.82	\$3.63	\$7.91	\$4.87	\$44.79	\$5.59	\$39.20	\$0.82	\$32.84
Vermont.....	38	11	45	6.99	8.08	2.43	.20	3.11	8.93	2.93	6.27	3.47	43.83	7.16	36.67	.81	29.48
New York.....	297	12	40	6.50	6.24	1.92	.21	2.20	1.98	2.03	5.98	3.47	30.62	5.39	25.23	.63	22.89
New Jersey.....	43	10	31	5.43	5.35	1.58	.17	2.20	1.93	1.75	5.56	1.80	24.27	4.23	20.04	.66	18.12
Pennsylvania.....	430	14	34	6.20	5.35	1.94	.06	2.09	1.07	1.74	5.11	3.38	27.07	4.87	22.20	.65	19.16
Maryland.....	44	8	35	5.01	4.82	1.59	.06	2.08	1.07	1.39	5.56	2.96	25.44	5.06	20.38	.58	18.61
Virginia.....	135	10	28	4.56	4.21	1.46	.21	2.13	1.26	1.46	4.75	2.31	22.35	4.73	18.60	.70	18.00
West Virginia.....	94	6	27	5.40	4.17	1.44	.32	1.89	1.44	1.55	5.70	2.08	25.93	3.62	22.31	.83	17.16
North Carolina.....	152	9	27	4.46	4.17	1.44	.13	2.81	1.11	1.74	5.92	2.30	23.64	2.36	21.28	.79	20.68
South Carolina.....	92	22	29	3.03	4.63	1.48	.26	2.40	.26	1.79	5.92	2.37	19.79	2.37	19.79	.68	23.38
Georgia.....	207	18	23	2.78	3.76	1.42	.17	1.77	.46	1.67	4.42	1.92	18.37	1.84	16.53	.72	19.13
Ohio.....	451	13	39	4.29	5.04	1.42	.15	1.22	.51	1.74	5.67	2.84	22.88	2.93	19.95	.51	17.96
Indiana.....	418	23	33	2.91	3.84	1.14	.13	1.56	.62	1.19	5.70	1.99	18.08	2.94	16.04	.49	13.15
Illinois.....	494	36	39	2.16	3.77	1.00	.19	.66	.32	1.23	6.73	2.04	17.60	1.72	15.88	.41	16.12
Michigan.....	416	15	39	5.28	4.96	1.74	.16	.69	1.31	1.24	5.20	2.39	22.97	3.29	19.68	.50	17.84
Wisconsin.....	448	23	39	4.31	4.88	2.11	.30	.17	1.51	1.53	6.27	2.44	23.52	3.33	19.99	.51	17.64
Minnesota.....	513	37	41	3.38	4.34	1.48	.20	.04	.75	1.26	4.63	2.39	18.47	1.53	17.14	.42	15.10
Iowa.....	522	38	40	1.95	3.82	1.24	.15	.43	.42	1.32	7.60	2.23	18.74	1.51	17.23	.43	15.12
Missouri.....	368	19	27	2.75	3.77	1.19	.13	.34	.60	1.31	4.30	1.87	16.26	1.42	14.84	.55	12.89
North Dakota.....	393	50	26	3.23	2.91	.95	.14	---	.17	1.82	2.25	1.71	12.18	.63	11.55	.44	7.90
South Dakota.....	392	47	37	2.38	3.90	1.78	.39	.03	.56	.95	3.43	2.29	15.71	.70	15.01	.41	11.97
Nebraska.....	366	32	36	2.20	4.04	1.22	.27	.01	.39	1.03	4.84	1.98	15.99	1.09	14.90	.41	13.25
Kansas.....	420	23	31	2.68	4.52	1.41	.08	.04	.39	1.35	3.92	1.43	15.45	.88	14.57	.47	14.29
Kentucky.....	95	13	22	3.29	4.25	1.76	.43	1.08	.41	1.13	4.97	2.20	19.52	1.62	17.90	.81	13.93
Tennessee.....	130	10	23	3.55	3.65	1.37	.14	.96	.95	1.28	4.88	2.05	18.83	1.62	17.21	.75	15.51
Alabama.....	73	11	21	2.92	3.58	1.05	.14	1.14	.42	1.64	4.16	1.45	16.50	1.45	15.05	.72	17.40
Mississippi.....	43	20	21	3.46	3.67	1.31	.10	.33	.23	1.15	4.67	2.30	18.01	1.26	16.75	.80	16.73
Texas.....	209	34	33	2.83	4.52	1.35	.33	.02	.33	1.17	4.40	2.20	17.05	1.21	15.84	.48	16.99
Oklahoma.....	191	30	23	2.64	3.96	1.08	.10	.08	.31	1.30	3.07	1.32	13.81	2.06	13.12	.57	12.41
Arkansas.....	113	13	25	3.57	4.73	1.37	---	.68	.71	1.47	4.49	1.91	18.93	2.06	16.87	.67	16.51
Montana.....	213	32	32	4.57	4.11	2.66	.53	.02	.23	.91	2.84	2.17	17.44	1.00	16.44	.51	13.09
Wyoming.....	86	39	37	3.97	4.17	2.07	---	.09	.86	1.21	3.18	2.28	19.43	1.00	17.74	.48	19.13
New Mexico.....	95	25	40	3.93	5.58	2.03	.02	.16	.78	1.49	5.59	3.00	24.11	1.43	22.68	.57	20.80
New Mexico.....	26	68	30	3.54	4.76	1.91	.24	.02	.63	1.31	4.36	2.48	21.25	1.43	18.82	.63	20.21
Utah.....	50	10	50	5.70	7.78	2.51	.30	.10	3.78	1.91	10.73	4.24	39.95	2.84	37.11	.74	31.63
Idaho.....	76	21	50	4.72	6.80	1.87	.04	.04	.82	1.53	7.16	3.85	29.07	1.00	28.07	.56	23.23

¹ Includes miscellaneous labor, irrigating and water, spraying and spray material.
² Sacks and twine, crop insurance, use of implements, use of storage buildings, and overhead.

TABLE 10.—*Oats: Cost of production by States, 1923—Continued*

States	Num-ber of reports	Acres in oats per farm	Yield per acre (bushels)	Gross cost per acre								Credit per acre (straw)		Net cost		Value of oats	
				Pre- pare and plant	Har- vest and thresh	Market	Miscel- laneous labor	Com- mercial ferti- lizer	Ma- nure	Seed	Land rent	Miscel- laneous costs	Total	Per acre	Per bushel	Per acre	Per bushel
Washington.....	74	26	58	\$5.35	\$7.35	\$1.94	\$0.65	\$0.19	\$1.85	\$1.65	\$8.48	\$5.03	\$32.49	\$20.49	\$0.51	\$20.37	\$0.51
Oregon.....	56	23	48	5.01	5.52	2.26	.58	.06	1.39	1.73	6.78	3.94	27.27	25.97	.54	26.01	.53
California.....	25	65	35	4.04	5.36	1.37	.27	.02	.26	1.81	5.09	3.12	21.34	19.84	.57	24.30	.69
United States ³	8,481	26	35	3.64	4.47	1.47	.28	.07	.80	1.38	5.18	2.34	20.23	18.08	.52	16.38	.49

³ The total for the United States includes 45 records from the following States in which there were not enough reports to show State averages: New Hampshire, Massachusetts, Connecticut, Florida, Louisiana and Arizona.

State average of oat costs.—Average costs are given for each of 39 States, arranged according to average costs per bushel, in Table 11. The lowest average cost for a State was \$0.41 and the highest, \$0.83 per bushel. The lowest average price of oats per bushel for any State was \$0.32, and the highest, \$0.82.

In general, States that received low prices reported low costs and those that received high prices reported high costs.

In only 6 of the 39 States was the average price reported for oats greater than the average cost of production. Practically all of the States having the lowest bushel costs, 40 to 50 cents, were located in the Corn Belt and Central Plains wheat region. In the next cost group, from 51 to 60 cents per bushel, the Corn Belt was represented by 2 States, the Central Plains wheat region by 2 States, and the Pacific Northwest wheat region by 3 States. In this class four widely separated States occurred—Maryland, Wisconsin, Colorado, and California.

TABLE 11.—Oats: Variations in State averages of costs, prices, and yields, 1923

State	Net cost per bushel	Averages for farms reporting					State average yields ¹	
		Net cost per acre	Net cost per bushel	Price per bushel	Price below cost ²	Yield per acre (bushels)	1923 (bushels)	7-year average (bushels)
Illinois.....	\$0.40 to \$0.50	\$15.88	\$0.41	\$0.41	\$0.00	39	35	40
South Dakota.....		15.01	.41	.34	.07	37	34	34
Nebraska.....		14.90	.41	.37	.04	36	33	32
Minnesota.....		17.14	.42	.37	.05	41	37	36
Iowa.....		17.23	.43	.38	.05	40	36	39
North Dakota.....		11.55	.44	.32	.12	26	23	24
Kansas.....		14.57	.47	.47	.00	31	26	28
Texas.....		15.84	.48	.50	+.02	33	32	28
Wyoming.....		17.74	.48	.49	+.01	37	34	35
Indiana.....		16.04	.49	.40	.09	33	28	36
Michigan.....	\$0.51 to \$0.60	19.68	.50	.46	.04	39	32	35
Ohio.....		19.95	.51	.47	.04	39	34	38
Wisconsin.....		19.99	.51	.45	.06	39	36	40
Montana.....		16.44	.51	.40	.11	32	33	30
Washington.....		29.49	.51	.51	.00	58	57	43
Oregon.....		25.97	.54	.53	.01	48	39	35
Missouri.....		14.84	.55	.44	.11	27	25	28
Idaho.....		28.07	.56	.47	.09	50	46	41
Oklahoma.....		13.12	.57	.53	.04	23	20	26
Colorado.....		22.68	.57	.51	.06	40	32	34
California.....	\$0.61 to \$0.70	19.84	.57	.69	+.12	35	32	32
Maryland.....		20.38	.58	.53	.05	35	30	31
New York.....		25.23	.63	.58	.05	40	32	34
New Mexico.....		18.82	.63	.63	.00	30	20	32
New Jersey.....		20.04	.65	.58	.07	31	24	32
Pennsylvania.....		22.20	.65	.56	.09	34	29	35
Arkansas.....		16.87	.67	.66	.01	25	23	25
South Carolina.....		19.79	.68	.68	+.13	29	24	20
Virginia.....		19.62	.70	.68	.02	28	22	22
Georgia.....		16.53	.72	.82	+.10	23	18	19
Alabama.....	\$0.71 to \$0.80	15.05	.72	.82	+.10	21	17	19
Utah.....		37.11	.74	.64	.10	50	38	42
Tennessee.....		17.21	.75	.67	.08	23	21	23
North Carolina.....		21.28	.79	.77	.02	27	22	18
Mississippi.....	\$0.81 to \$0.90	16.75	.80	.80	.00	21	19	19
Vermont.....		36.67	.81	.65	.16	45	35	37
Kentucky.....		17.50	.81	.62	.19	22	21	23
Maine.....		39.20	.82	.69	.13	48	37	37
West Virginia.....		22.31	.83	.67	.16	27	24	25

¹ State average yields obtained by the Division of Crop and Livestock Estimates and published in the Year Books of the United States Department of Agriculture, carried to the nearest whole number seven-year average yields for 1914 to 1920, inclusive.

² The plus sign (+) indicates price above cost.

TABLE 12.—Oats: Cost of production by yield groups, 1923

Yield (bushels per acre)	Num-ber of re-ports	Acres in oats per farm	Yield per acre (bush-els)	Gross cost per acre								Credit per acre (straw)	Net cost		Value of oats	
				Pre- pare and plant	Har- vest 1	Market	Miscel- laneous labor 2	Ferti- lizer and manure	Seed	Land rent	Miscel- laneous costs 3		Total	Per acre	Per bushel	Per acre
17 bushels and under	692	22	12	\$3.29	\$3.26	\$1.04	\$0.26	\$1.43	\$1.32	\$3.48	\$1.91	\$15.99	\$14.54	\$1.21	\$7.83	\$0.60
18 to 22 bushels	899	20	20	3.26	3.70	1.13	.23	1.15	1.26	3.96	1.92	16.61	14.96	.75	10.85	.54
23 to 27 bushels	856	22	25	3.51	3.86	1.28	.17	1.38	1.32	4.38	2.17	18.07	16.13	.65	12.67	.51
28 to 32 bushels	1,497	26	30	3.51	4.23	1.43	.23	1.29	1.33	4.74	2.26	19.02	17.04	.57	14.35	.48
33 to 37 bushels	1,919	29	35	3.63	4.46	1.43	.24	1.39	1.33	5.15	2.40	20.03	17.76	.51	15.89	.46
38 to 42 bushels	1,552	27	40	3.71	4.74	1.62	.25	1.60	1.40	5.69	2.51	21.52	19.17	.48	18.34	.46
43 to 47 bushels	470	32	45	3.92	5.08	1.67	.29	1.62	1.40	6.01	2.70	22.69	20.18	.45	19.98	.45
48 to 52 bushels	809	28	50	3.98	5.39	1.65	.37	1.73	1.45	6.58	2.76	23.91	21.26	.43	22.50	.45
53 to 57 bushels	163	30	55	4.08	5.31	1.44	.28	1.50	1.46	6.70	2.87	23.04	21.25	.39	24.87	.46
58 to 62 bushels	276	24	60	4.14	5.93	1.96	.59	1.89	1.50	6.98	3.06	26.05	23.33	.38	27.44	.46
63 bushels and over	203	18	73	5.01	7.35	1.86	.98	2.91	1.69	8.70	4.12	32.62	29.00	.40	37.06	.51

1 Threshing is included under harvesting.

2 Includes miscellaneous labor, irrigating and water, spraying and spray material.

3 Sacks and twine, crop insurance, use of implements, use of storage buildings, and overhead.

In the next three cost groups, the cotton States, and the New England and Eastern States made up the majority. There is a general tendency for some States to have relatively low costs and others to have relatively high costs, but unusually good or poor yields in any State for a particular year would cause this tendency to vary somewhat from year to year.

Cost per bushel, by yield groups.—Reports for oats are grouped according to yield per acre in Table 12, and detailed costs are given for each yield group. Increases in yields were accompanied by increases in acre costs, but the effect of increased yields was to reduce bushel costs. Of the 8,336 reports (Table 13), approximately 50 per cent, largely from the Corn Belt and Central Plains wheat farms, gave yields of 28 to 42 bushels per acre. Twenty-nine per cent of the farms reported yields of less than 28 bushels per acre and of these, between one-fourth and one-third reported yields of less than 17 bushels. Twenty-three per cent of the farmers reported yields of more than 42 bushels, of which about 10 per cent had yields of 63 bushels or more per acre.

TABLE 13.—Oats: Distribution of reports by yield groups, 1923

States	Yield per acre and number of farms										
	17 bushels and under	18 to 22 bushels	23 to 27 bushels	28 to 32 bushels	33 to 37 bushels	38 to 42 bushels	43 to 47 bushels	48 to 52 bushels	53 to 57 bushels	58 to 62 bushels	63 bushels and over
Maine.....	—	—	—	4	3	12	3	14	5	2	5
New Hampshire.....	—	—	—	1	—	2	—	1	—	—	—
Vermont.....	1	—	1	4	5	7	3	8	3	2	3
Massachusetts.....	1	1	—	2	—	2	—	1	—	—	—
Rhode Island.....	—	—	—	—	—	—	—	—	—	—	—
Connecticut.....	—	1	—	1	2	2	1	1	—	—	—
New York.....	9	12	19	60	33	68	17	38	5	17	17
New Jersey.....	3	4	6	10	9	7	1	3	—	—	—
Pennsylvania.....	21	45	48	78	67	98	27	28	7	6	3
Delaware.....	—	—	—	1	—	—	—	—	—	1	—
Maryland.....	—	4	9	9	1	16	1	3	—	—	1
Virginia.....	22	35	20	23	11	15	1	6	—	2	—
West Virginia.....	18	16	17	14	13	11	—	2	1	1	—
North Carolina.....	23	33	22	31	9	19	2	6	—	—	1
South Carolina.....	7	15	24	16	9	17	—	2	—	1	1
Georgia.....	99	70	44	38	11	26	4	6	—	3	2
Florida.....	4	2	2	—	—	1	—	—	—	—	—
Ohio.....	11	26	36	70	53	98	33	74	14	21	12
Indiana.....	32	48	42	90	47	76	25	40	2	7	1
Illinois.....	12	33	32	89	39	109	35	74	23	29	15
Michigan.....	11	23	33	62	50	90	38	66	8	20	15
Wisconsin.....	14	19	35	59	58	110	39	60	18	23	11
Minnesota.....	9	18	30	65	73	120	51	78	22	26	18
Iowa.....	4	16	20	97	76	138	56	76	15	18	7
Missouri.....	40	83	71	76	31	43	2	10	1	2	—
North Dakota.....	76	70	59	80	40	42	10	7	1	2	—
South Dakota.....	9	25	36	82	59	83	28	47	7	14	—
Nebraska.....	14	25	26	77	60	91	21	22	8	11	5
Kansas.....	37	44	51	88	41	76	17	30	3	4	4
Kentucky.....	21	30	18	12	4	4	—	—	—	—	—
Tennessee.....	32	33	26	14	9	6	1	1	—	1	1
Alabama.....	32	15	5	13	1	3	—	3	—	1	—
Mississippi.....	14	11	3	9	—	3	—	—	—	—	—
Louisiana.....	3	3	2	2	1	—	—	—	—	—	—
Texas.....	16	19	21	58	23	32	4	18	4	2	4
Oklahoma.....	35	45	22	38	9	10	2	8	1	1	1
Arkansas.....	22	25	16	22	10	7	4	—	—	—	1
Montana.....	23	23	32	44	22	25	10	15	2	9	4
Wyoming.....	3	8	10	10	11	20	4	8	2	5	2
Colorado.....	5	8	8	13	8	19	3	9	1	6	9
New Mexico.....	6	3	—	5	2	3	1	—	1	3	—
Arizona.....	—	1	—	—	—	—	—	—	—	1	—
Utah.....	1	—	1	7	2	5	8	7	1	6	12
Nevada.....	—	—	—	—	—	—	—	—	—	—	—
Idaho.....	—	1	2	7	7	17	5	14	—	10	13
Washington.....	1	1	—	4	3	8	5	11	2	13	25
Oregon.....	—	2	3	8	4	9	4	8	3	5	10
California.....	1	3	4	4	3	2	2	3	3	—	—
United States.....	692	899	856	1,497	919	1,552	470	809	163	276	203

POTATO PRODUCTION COSTS, 1923

Although potato production is common on most farms, it is commercially confined to certain scattered districts. The reports of an acre or less were therefore excluded from the tabulations, and the remaining records were grouped, as nearly as possible according to sections of the country that have similar production conditions. By this method the records fall into seven geographical divisions and average costs are shown for each. (See Table 14.) In two of the more important divisions, designated as North Central and Northeastern States, sufficient records were obtained to permit one cost tabulation by yield groups and another giving the distribution of records by yield groups. (See Tables 15 and 16.)

In general, each division record showed that the average price received for potatoes in 1923 was sufficient to allow a margin above cost. In the Southeastern, or early-potato section, the average cost was \$75.66 per acre and the average sales value was \$161.89 per acre, leaving a margin of \$86.23 per acre. The group of States showing the lowest margin between cost and value was the North Central division, where, although the cost per bushel was relatively low, the price received for potatoes averaged but 47 cents per bushel, leaving a margin between cost and value of only \$1.42 per acre. The averages for the other divisions showed favorable margins between costs and sales value per acre of product.

The farmers included in these tabulations reported higher yields than the State averages published by the Division of Crop and Livestock Estimates. Since all farms reporting 1 acre or less of potatoes were excluded from the tables, these figures represent commercial potato farms or those approximating this classification. Moreover, most of these replies were probably from some of the better potato-producing areas.

The States composing the northeastern group are characterized by high labor and fertilizer costs and by comparatively good potato yields. In the eastern section, the cost of fertilizers and land rent contributed toward making this the second highest area of acre and bushel costs. The price of potatoes in this area in 1923 was very good and a good profit was realized. In the southeastern area yields were relatively low and fertilizer costs high. The average cost was highest in this area, averaging \$0.78 per bushel, and the value of potatoes was highest, averaging \$1.64 per bushel. In the central, north central, and west south central areas, 1923 acre costs were much the same; but the costs per bushel varied from \$0.44 to \$0.67, because of differences in yields which varied from 82 bushels per acre in the west south central area to 116 bushels in the north central area. In the western area, labor costs were relatively high; but the especially good yield, excelled by only one other geographical division, resulted in a relatively low cost per bushel.

Cost of production by yield groups.—As indicated for the crops previously discussed, there was a general tendency for each item of cost, and for the total cost per acre, to increase as yields increased and for bushel costs to decrease with increased yields. (See Tables 15 and 16.)

TABLE 14.—Potatoes: Cost of production, 1923

Geographical division	Num-ber of re-ports	Acres in po-tatoes per farm	Yield per acre (bush-els)	Gross cost per acre								Credit per acre (culls)		Net cost		Value of potatoes	
				Prepare and plant	Culti-vate	Harvest	Market	Miscellaneous labor ¹	Ferti-lizer and manure	Seed	Land rent	Miscellaneous costs ²	Total	Per acre	Per bushel	Per acre	Per bushel
Northeastern ³	574	8	170	\$12.40	\$6.88	\$14.83	\$11.97	\$4.73	\$25.13	\$14.05	\$9.03	\$6.97	\$105.99	\$0.49	\$0.62	\$172.34	\$1.02
Eastern ⁴	231	5	116	9.36	5.04	10.16	9.28	2.06	16.65	12.42	10.76	5.29	81.02	.56	.69	131.94	1.15
Southeastern ⁵	112	6	97	7.68	4.16	6.85	6.56	1.52	18.87	15.98	7.30	6.91	75.83	.17	.78	161.89	1.64
Central ⁶	407	6	101	6.67	3.78	8.14	6.37	1.88	5.27	10.01	7.44	3.00	52.56	.08	.52	80.12	.81
North Central ⁷	964	7	116	7.22	3.86	9.06	7.32	2.65	6.43	6.13	5.40	3.64	51.71	.37	.51	52.76	.47
West South Central ⁸	85	5	82	6.53	3.66	6.53	5.73	1.32	7.89	12.84	6.37	4.07	54.94	.18	.67	103.29	1.32
Western ⁹	321	13	149	8.73	4.27	13.03	10.27	2.97	4.78	8.62	8.42	8.64	69.73	.90	.46	97.07	.70

¹ Includes miscellaneous labor, irrigating and water, spraying and spray material.

² Sacks and twine, crop insurance, use of implements, use of storage buildings, and overhead.

³ Maine, New Hampshire, Vermont, Massachusetts, Connecticut, New York, New Jersey, and Pennsylvania.

⁴ Maryland, Virginia, West Virginia, North Carolina, Kentucky, and Tennessee.

⁵ South Carolina, Georgia, Florida, Alabama, and Mississippi.

⁶ Ohio, Indiana, Illinois, Iowa, Missouri, Kansas, and Nebraska.

⁷ Michigan, Wisconsin, Minnesota, North Dakota, and South Dakota.

⁸ Louisiana, Texas, Oklahoma, and Arkansas.

⁹ Montana, Wyoming, Colorado, Utah, Idaho, Washington, Oregon, and California.

TABLE 15.—Potatoes: Cost of production by yield groups, 1923

NORTH CENTRAL STATES—MICHIGAN, WISCONSIN, MINNESOTA, NORTH DAKOTA, AND SOUTH DAKOTA

Yield (bushels per acre)	Num- ber of reports	Acres in po- tatoes per farm	Yield per acre (bush- els)	Gross cost per acre							Credit per acre (culls)	Net cost		Value of potatoes	
				Prepare and plant	Culti- vate	Har- vest	Mar- ket	Miscel- laneous labor ¹	Ferti- lizer and manure	Seed	Land rent	Miscel- laneous costs ²	Total	Per bushel	Per acre
37 bushels and under.....	26	5	27	\$5.70	\$2.76	\$6.01	\$5.62	\$1.73	\$7.04	\$4.87	\$3.42	\$1.98	\$39.73	\$1.47	\$39.65
38 to 62 bushels.....	86	8	53	6.03	3.71	7.02	4.24	2.37	4.08	5.05	4.28	3.22	40.90	.77	40.63
63 to 87 bushels.....	160	8	77	6.21	3.01	7.19	5.23	2.27	4.35	5.52	4.53	3.17	41.48	.53	41.11
88 to 112 bushels.....	261	9	99	6.76	3.62	8.18	6.84	2.34	5.77	6.12	4.57	3.46	48.06	.48	47.66
113 to 137 bushels.....	119	7	125	7.61	4.07	9.33	7.78	2.19	7.53	6.44	5.28	3.45	54.70	.43	54.07
138 to 162 bushels.....	135	7	150	7.87	4.06	9.64	8.75	2.40	7.24	6.53	5.97	4.71	57.77	.38	57.49
163 to 187 bushels.....	43	6	174	7.80	4.38	11.49	9.70	3.24	7.24	6.77	6.54	4.07	60.07	.38	59.69
188 to 212 bushels.....	64	7	200	9.07	5.43	12.96	12.20	4.58	8.23	6.67	7.23	5.07	70.95	.35	70.60
213 bushels and over.....	35	4	291	10.57	5.66	16.19	12.20	6.49	12.29	9.32	5.84	4.05	82.61	.28	81.89

NORTHEASTERN STATES—MAINE, NEW HAMPSHIRE, VERMONT, MASSACHUSETTS, CONNECTICUT, NEW YORK, NEW JERSEY, AND PENNSYLVANIA

Yield (bushels per acre)	Num- ber of reports	Acres in po- tatoes per farm	Yield per acre (bush- els)	Gross cost per acre							Credit per acre (culls)	Net cost		Value of potatoes	
				Prepare and plant	Culti- vate	Har- vest	Mar- ket	Miscel- laneous labor ¹	Ferti- lizer and manure	Seed	Land rent	Miscel- laneous costs ²	Total	Per bushel	Per acre
37 bushels and under.....	7	4	23	\$11.31	\$6.79	\$9.71	\$6.75	\$4.21	\$7.60	\$9.00	\$3.17	\$3.54	\$62.08	\$2.70	\$62.08
38 to 62 bushels.....	24	4	51	9.25	5.88	10.68	7.31	2.81	19.30	10.35	6.14	3.60	74.79	1.47	74.79
63 to 87 bushels.....	33	8	76	10.74	4.96	9.98	7.31	2.83	16.36	10.58	7.55	4.70	74.99	.98	74.86
88 to 112 bushels.....	85	4	100	11.51	6.07	11.34	7.50	2.31	16.96	12.36	6.49	4.85	79.41	.79	79.08
113 to 137 bushels.....	65	7	125	11.43	6.01	12.62	9.18	3.87	17.93	12.12	7.31	4.60	85.07	.68	84.80
138 to 162 bushels.....	94	5	150	12.54	6.03	14.73	11.80	4.02	23.25	14.33	8.00	6.18	102.26	.50	101.76
163 to 187 bushels.....	26	10	176	12.69	7.35	17.01	11.01	4.02	23.25	15.76	8.38	6.34	115.15	.14	115.01
188 to 212 bushels.....	98	13	200	12.69	6.97	15.87	13.72	6.27	29.25	19.46	15.93	10.59	141.78	.92	140.86
213 to 237 bushels.....	28	15	225	12.45	8.92	17.08	16.56	7.26	33.61	19.46	11.96	12.64	139.50	.16	140.62
238 to 262 bushels.....	48	9	250	13.70	8.56	17.23	16.69	7.26	33.61	17.72	11.96	12.64	139.50	.38	138.15
263 to 287 bushels.....	13	10	274	14.08	8.38	19.31	18.02	7.37	45.78	16.69	11.05	12.28	153.19	.56	152.81
288 to 312 bushels.....	35	7	300	15.64	8.38	19.75	18.17	6.29	37.62	16.69	11.05	9.67	142.05	.47	140.81
313 bushels and over.....	16	8	370	12.91	8.27	22.72	17.25	8.44	41.73	19.91	12.42	9.98	153.63	.41	153.51

¹Includes miscellaneous labor, irrigating and water, spraying and spray material²Includes sacks and twine, crop insurance, use of implements, use of storage buildings, and overhead.

In the North Central States, 73 per cent of the farmers reported yields of 63 to 162 bushels per acre. Most of these yields were around 100, 125, and 150 bushels per acre. Twelve per cent reported yields of less than 63 bushels per acre, and 15 per cent reported yields of more than 162 bushels.

In the Northeastern States, yields were generally higher, 64 per cent of the farmers had yields of 88 to 212 bushels per acre, 11 per cent had yields of less than 88 bushels, and 25 per cent had yields of more than 212 bushels per acre.

TABLE 16.—Potatoes: Distribution of reports by yield groups, 1923

States	Yield per acre and number of farms												
	37 bushels and under	38 to 62 bushels	63 to 87 bushels	88 to 112 bushels	113 to 137 bushels	138 to 162 bushels	163 to 187 bushels	188 to 212 bushels	213 to 237 bushels	238 to 262 bushels	263 to 287 bushels	288 to 312 bushels	313 bushels and over
NORTH CENTRAL													
Michigan.....		8	28	43	38	54	14	31	7	8	2	5	
Wisconsin.....	14	20	33	57	35	40	15	16	4	2			1
Minnesota.....	4	19	44	72	24	39	10	12	2		1	1	
North Dakota.....	5	18	30	45	10	12	2	2		1	1		
South Dakota.....	3	21	25	44	12	10	2	3					
Total.....	26	86	160	261	119	155	43	64	13	11	4	6	1
NORTHEASTERN													
Maine.....				1		2	1	10	5	7	9	8	6
New Hampshire.....			1		1	5	1	1		3	1	2	1
Vermont.....			1	2	1	1	2	4		4		3	1
Massachusetts.....				1	3	4	1	3	1	4		2	1
Connecticut.....					2	1	1	6	2	2	1	3	1
New York.....	2	5	12	33	27	39	10	23	8	10	1	5	2
New Jersey.....	1	4	7	7	5	7	2	4		2		1	
Pennsylvania.....	4	15	12	41	26	35	8	47	12	16	1	11	4
Total.....	7	24	33	85	65	94	26	98	28	48	13	35	16

COTTON PRODUCTION COSTS, 1923

Cotton reports were received from 2,519 farmers, but the greater number were from growers having yields considerably above the average. For this reason the costs are shown by yield groups, rather than by average cost by States and by the entire Cotton Belt.

The average yield of lint cotton in the United States in 1923 was 130.6 pounds per acre, according to the Division of Crop and Livestock Estimates, United States Department of Agriculture. Of the 2,519 reports received regarding the cost of producing cotton, 407 showed yields of 101 to 140 pounds per acre, averaging 124 pounds. (See Table 17.) This group appears most nearly to represent general conditions in the cotton States during 1923; the average net cost of production on these 407 farms was \$0.22 per pound of lint, and the average price received was \$0.30.

Fifty-five per cent of all farmers reporting had yields of more than 140 pounds per acre and, on an average, produced their cotton at considerably less cost per pound than did those who had yields of 101 to 140 pounds of lint per acre.

Seven hundred and thirty-two, or 29 per cent of the farmers reporting, produced 100 pounds of lint or less per acre. Of these, 281 produced at a cost above the price received.

TABLE 17.—Cotton: Cost of production by yield groups, 1923

Yield (pounds of lint per acre)	Number of reports	Acres in cotton per farm	Yield per acre (pounds of lint)	Gross cost per acre								Credit per acre (cotton seed)	Net cost of lint		Value of lint		
				Pre- pare and plant	Culti- vate	Har- vest and market	Miscel- laneous labor ¹	Ferti- lizer and manure	Seed	Gin- ning	Land rent		Miscel- laneous costs ²	Total	Per acre	Per pound	Per pound
20 pounds and under.....	32	55	14	\$3.69	\$5.25	\$2.11	\$0.70	\$2.94	\$1.14	\$0.22	\$3.52	\$1.52	\$21.09	\$0.74	\$20.35	\$1.45	\$4.28
21 to 60 pounds.....	240	69	44	3.84	5.24	3.98	.79	4.25	1.25	.59	4.33	2.69	26.96	2.10	24.86	.56	13.32
61 to 100 pounds.....	451	55	89	3.91	5.73	5.57	.79	3.97	1.16	1.33	4.88	2.57	29.91	3.60	26.31	.30	26.55
101 to 140 pounds.....	407	54	124	4.25	6.12	6.69	1.03	3.39	1.24	1.76	4.98	3.06	32.52	5.13	27.39	.22	36.48
141 to 180 pounds.....	394	70	161	4.18	5.92	7.60	1.11	3.55	1.22	1.99	5.99	2.74	34.30	6.70	27.51	.17	47.73
181 to 220 pounds.....	279	51	200	4.37	6.20	8.74	1.36	4.48	1.18	2.23	6.90	3.31	38.77	9.74	31.13	.16	60.29
221 to 260 pounds.....	257	63	245	4.71	6.59	9.85	1.56	5.04	1.40	2.77	7.08	3.33	42.33	7.61	32.62	.13	72.60
261 to 300 pounds.....	165	30	290	5.01	7.08	11.13	1.64	6.27	1.54	3.08	8.05	3.44	47.24	11.00	36.24	.12	87.77
301 to 340 pounds.....	34	56	324	5.26	8.51	13.39	2.46	9.03	1.64	3.32	9.59	5.09	58.29	12.64	45.65	.14	95.34
341 to 380 pounds.....	54	33	356	5.50	7.18	12.13	2.83	8.75	1.48	3.90	9.53	4.10	55.40	12.62	42.78	.12	107.14
381 to 420 pounds.....	94	31	401	5.71	8.62	13.74	2.37	10.41	1.51	3.71	8.91	4.37	59.35	14.98	44.37	.11	124.22
421 to 460 pounds.....	27	31	444	5.82	8.14	14.87	2.91	9.99	1.59	4.46	12.42	4.56	64.76	14.53	50.23	.11	132.63
461 to 500 pounds.....	60	26	495	6.09	7.75	17.71	3.04	9.73	1.55	5.17	10.43	5.54	67.01	17.94	49.07	.10	150.42
501 pounds and over.....	16	27	618	6.34	7.51	28.28	2.79	13.86	1.44	6.92	10.79	5.07	83.00	26.17	56.83	.09	197.45

¹ Includes miscellaneous labor, irrigating and water, dusting and dusting material.² Includes picking sacks and sheets, crop insurance, use of implements, use of storage buildings and overhead.

Fertilizer costs and cotton yields.—In 1923, the commercial fertilizer sold in the cotton States amounted to 4,308,668 short tons, as estimated from the sale of fertilizer tags. About 91 per cent of this total was sold in the seven cotton States of Virginia, North Carolina, South Carolina, Georgia, Florida, Alabama, and Mississippi, and about 9 per cent in the five States of Louisiana, Texas, Arkansas, Tennessee, and Missouri. As indicated by these figures, little or no fertilizer is used on the cotton lands of some States, while large quantities are used on the cotton farms of other States. This point is illustrated further in Table 18, where the percentage of cotton land fertilized and the average application per acre on those farms using fertilizer are given.

Wide variations are found in the average quantities of fertilizer used in different cotton States, in different localities of the States, and even on different farms in the same locality. Although a number of things affect cotton yields, variations in the use of fertilizers is one important reason for variations in yields.

TABLE 18.—Cotton: Fertilizer used on cotton, 1923 (as reported to the United States Department of Agriculture by cotton growers)¹

State	Acreage receiving fertilizer	Fertilizer applied per acre when used	State	Acreage receiving fertilizer	Fertilizer applied per acre when used
	<i>Per cent</i>	<i>Pounds</i>		<i>Per cent</i>	<i>Pounds</i>
North Carolina.....	98	445	Arkansas.....	31	185
Virginia.....	95	385	Tennessee.....	30	210
Georgia.....	93	250	Texas.....	5	190
South Carolina.....	89	310	Missouri.....	3	200
Florida.....	88	250	Oklahoma.....	1	150
Alabama.....	88	230	New Mexico.....	0	-----
Mississippi.....	44	190	Arizona.....	0	-----
Louisiana.....	38	190			

¹ From Weather, Crops and Markets, July 14, 1923.

In Table 19, a total of 2,519 reports are classified by the cost of fertilizer per acre and the average yield of lint given for each fertilizer cost group. Of the total number of farms, about 35 per cent used no fertilizer on cotton. Of the 1,627 farmers who used fertilizer, about 77 per cent reported a fertilizer cost of from \$2 to \$7.99 per acre; 4.5 per cent a cost of less than \$2; 14.2 per cent a cost of from \$8 to \$13.99; and 4.4 per cent a cost of \$14 or more per acre. The majority of the farms using no fertilizer are located in the western and more fertile cotton States and reported an average yield of 158 pounds of lint per acre. Of those using fertilizer, there was a decided tendency for the yield to increase as the acre cost of fertilizer increased, the average yield increasing from 139 pounds in the group with fertilizer costs of less than \$2 per acre to an average of 346 pounds for the group which reported fertilizer costs of \$14 and over per acre.

TABLE 19.—Cotton: Classification of farms by fertilizer costs per acre and related yields of lint

Cost of fertilizer per acre	Number of reports	Average yield per acre	Average fertilizer expense per acre	Cost of fertilizer per acre	Number of reports	Average yield per acre	Average fertilizer expense per acre
		<i>Pounds</i>				<i>Pounds</i>	
No fertilizer.....	892	158	-----	\$8 to \$9.99.....	102	259	\$3. 49
Under \$2.....	73	139	\$1. 31	\$10 to \$11.99.....	83	277	10. 24
\$2 to \$3.99.....	510	141	2. 87	\$12 to \$13.99.....	46	325	12. 32
\$4 to \$5.99.....	463	170	4. 61	\$14 and over.....	71	346	20. 06
\$6 to \$7.99.....	279	217	6. 45				

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April 16, 1925

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